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PRUNING THE PEAR TREE.—(Continued.)

If during the preceding summer, any lateral branches have developed feebly, then in place of this pruning you should cut them a little longer than their neighbors, or even leave them untouched.

It will be equally good practice to *notch* the trunk first above the branch. If the bud on which you had counted to have a branch has remained dormant, this *notching* would become still more indispensable. If in time there be no bud at the point where a branch would be necessary to fill a vacancy, you should insert there a graft. To this intent, if you have foreseen the vacancy, you might have developed below on the trunk a superfluous branch, which you could graft in during the year following its development, and this at the point where necessary to supply the vacancy—fig. 470. When the union is complete, you separate the branch from the trunk at A, and then cut it at B, below the point of union. When on the contrary, a lateral branch shall have acquired, despite the *pinchings*, a disproportioned development, in order to diminish its vigor, you should cut it shorter than the others. If the difference of thickness which it presents is very marked, it

Fig. 470.—*Grafting in a Branch.*

Entered according to Act of Congress, in the year 1865, by Geo. E. & F. W. Woodward, in the Clerk's Office of the District Court of the United States, for the Southern District of New York.

will be well to make a notch below its junction with the main stalk. These precautions should be observed during the whole period of the formation of the pyramid. During the summer which follows the second pruning, you apply to the shoot of the leading branch a treatment the same as that practiced on the original leader.

In addition, the shoots developed on the side branches are pinched to 12 inches from their starting point when they are only about 2¼ inches long, with the exception of the terminal shoot which is left intact, in order to furnish the prolongation of these branches. The pinching of these lateral shoots has the effect to diminish their vigor in such manner as to transform them progressively into fruit branches. It sometimes happens, especially with the shoots near the end of the branches, that a single pinching is not sufficient to arrest their growth, and that the eyes at the shoulder of the leaves at the end of the pinched shoots, start into fresh growth; in such case these must be pinched in like manner when they have attained a length of 2¼ inches. You must look out that the terminal shoots of the side branches, and the new shoots of the leader preserve a corresponding degree of vigor. The nearest shoots to the end of the leader will especially show a considerable development. You must watch these particularly, so as to prevent their hurting the growth of the leading shoot, which should always keep the pre-eminence, so as to prolong the main trunk of the tree. You attain these various results by means of pinching.

Third Pruning.—After the operations we have just described, the tree will present in the following spring the appearance of figure 471. The leader is cut at the same length as the preceding years at A.

The lower lateral branches are cut also as long as possible at the point marked by a transverse line. The upper branches are cut shorter, so as to favor the growth of the lower ones left favorably situated in respect to the natural flow of the sap. The little shoots of the lower branches intended to be transformed into Lambourdes undergo the operation of breaking. (This operation described in another part of the work, is intended to throw the lower buds on the broken shoots into fruit buds, instead of making new growth; and this takes place by reason of the broken wood not healing as speedily as if cut by the knife.—*Translator.*)

Fig. 471.—*Third Pruning.*

You give to the tree during the summer the same attention as during the preceding years. If on the *broken* branches any vigorous shoots should start pinch them in like manner.

Fourth Pruning.—Figure 472 shows the changes which the tree has experienced during the preceding summer.

The fourth pruning differs from the others in several respects. You give to the shoots of the lower branches half less the length of previous pruning, because they are about to reach the limit which they must not be allowed to pass, and because they have otherwise attained a thickness which will ensure to them all the vigor they should have. The branches of the

second and third stories are cut at the point indicated by a transverse mark.

You leave them greater length than the preceding year, because the lower branches have less need of protection, and it suits in commencing to give the tree a pyramidal shape.

The first shoots of the branches of the first story which received during the preceding year the operation of *breaking*, are subjected this year to the pruning which we have previously prescribed for them. (Also, in another part of the work, this

Fig. 472.—*Fourth Pruning.*

first shoot is cut off neatly, just above the second bud from the base, or the bud changed to a fruit bud, so as to replace the broken wound by a clean cut which will heal quickly.—*Trans'r.*) The little shoots starting from the branches of the second story are *broken* as were these of the first story. In fine the leader is shortened the same as in the previous years.

During the summer, you apply to the tree similar care as already prescribed.

We should remark, however, that the branches of the first story, having obtained almost entirely the limit which they ought not to pass, it will be requisite to allow their terminal shoots only a very limited development, so as not to employ uselessly the sap of the tree.

Fifth Pruning.—Our tree now begins to look up, (fig. 473) and the lower branches, being kept down under the effect of their own weight, give to the whole of the structure the pyramidal shape.

Fig. 473.—*Fifth Pruning.*

Some of the lambourdes of the lower branches have already fruited during the past summer. The pruning of this year does not differ from that of the preceding year; but in one point of view, that is to say, the branches at the base having already attained all the length they ought to have, you should no longer attend to their prolongation. In that respect you cut them short. As to the other branches they

ought all to be cut in such wise that their ends will touch the line A B, which extends from the ends of the lower branches to the tops of the leader after it has been cut back. The operations of the summer are, in all respects, the same as those of the preceding year.

Sixth and Seventh Prunings.—The sixth and seventh prunings differ in no respect from the fifth. Sometimes, in place of the seventh winter pruning, you ought to give to the lambourdes which have already fruited several times, the attention already prescribed.—(*i. e.* breaking and subsequent cutting.) Without this precaution these productions would have an indefinite growth, and cause confusion in the tree.

We would further add, that in proportion as the lateral branches elongate and are formed, they augment in weight, and that, deviating them from their primitive direction, they approach too closely to the earth, or to the neighboring branches, and produce confusion in the tree.

In order to avoid this difficulty, you should go around among the trees after the pruning, and bring back the branches into their proper direction by means of fastening, and in such fashion, that there shall be an equal space between them all.

At the end of the seventh year, the tree will present the appearance as in figure 447. It has now acquired the proportions which it ought to maintain; that is to say, its total height equals three times the entire diameter of its base.

If the ground occupied by the roots permit them to spread, the tree will have a tendency to enlarge its development. You may take advantage of this to give the pyramid grander dimensions. To this intent you will allow the leader to elongate anew, and also all the lateral branches, but in such wise as always to preserve between the height and diameter of the base the proportion we have above mentioned."

This treatise of our author which we have taken special pains to translate for our readers, we consider the most logical, philosophical, and intelligible of any that we have seen on the subject; and as such we commend it to our readers for careful study. There seems to be nothing left unsaid which ought to be said; and not a word too much on any one point. By studying this article, and putting its teachings in practice on his own trees, the amateur may attain a degree of proficiency and skill, that will soon exhibit itself in his trees; and he will moreover learn enough not to trust his pruning to other hands than his own. As to this particular form, our author says, "it is incontestibly the most advantageous; that by which the trees occupy the least space, yield the most abundantly, and show the longest duration. We do not know that we can recommend it too highly."

A PIG AND A COW.

I PROPOSE an odd horticultural subject; but the man who plants a garden, and builds a cottage, and carries in his thought the hope of shaking off the dust of the city under green trees upon his own sward-land, where some—nameless party—in white lawn, with blue ribbon of a sash (as in Mr. Irving's pretty picture of a wife), stands ready to greet him, after an hour of torture at the hands of our humane railroad directors—the man, I say, who looks forward to all this, and enters upon the experience, thinks, sooner or later, of a cow and a pig—the pig to consume the waste growth of his garden, and the cow to supply such tender food for his growing ones as they most need.

The pig can hardly be regarded as a classic animal; Virgil, indeed, introduces him as crunching acorns under elm-trees—which account I cannot help reckoning as apocryphal. But he is a very jolly and

frisky little animal in his young days, not without a great deal of clumsy grace in his movements, and showing a most human zeal for the full end of the trough.

There is almost the same diversity of opinion with respect to the different races of pigs which our horticultural friends indulge in with respect to fruits. It is always an awkward matter to discuss the merits of different families, whether of animals who talk, or animals who only grunt or bellow. If the raw suburban resident, in whose interest I make these notes, has an ambition to rear a prize hog that shall outweigh anything his neighbors can show, and intends to keep his bin full of rank material, I should certainly advise the great-boned Chester County race, which with judicious feeding come to most elephantine proportions. If, on the other hand, he should prefer a dapper, snug jointed beast, that shall not be particular in regard to food, and which will yield him cutlets in which the muscular material shall not be utterly overlaid and lost in fatty adipose matter, I should counsel the sleek Berkshire. Or if, uniting the two, he should desire a delicate limbed, well rounded, contented little animal, that shall browse with equanimity upon the purslane and the spare beet tops from his garden, I know none safer to commend than the Suffolks. Nor is it essential that he be thorough bred, since the tokens of *pur sang* are a red baldness, and a possible twisting away of the beast's own tail, which do not contribute to good looks.

All this is but preparatory to my reply to Lackland, who writes to me: "We have voted to have a pig and a cow; what kinds shall I get, and how shall I keep them, and what shall I do with them?"

And I wrote back to him: "Buy what the dealers will sell you for a Suffolk; if he lack somewhat in purity of blood (as he probably will), don't be punctilious in the matter. Let his sleeping and eating quarters be high and dry; and if you can manage beyond this a little forage ground for him to disport himself in, and wallow (if he will) on wet days,—so much the better. The forage, if you keep him supplied with raw material in the shape of muck, or old turfs from your hedge-rows, will add largely to your compost heap, and in this way he will make up any possible sacrifice in his flesh. Miss Martineau, I know, in her 'Two Acre Farming,' advises severe cleanliness; and if the only aim were a roaster for your table and accumulation of fat, there might be virtue in the recommendation. But a pig's work among your turfs is worth half of his pork. He will thrive very likely upon the waste from your table and your garden. But, against any possible shortness of food supply, it were well to provide a bag of what the grain people will sell you as 'ship stuff'; and this, stirred into the kitchen wash, will make an unctuous holiday gruel for your little beast, for which he will be clamorously grateful.

"Again, the stye should be convenient to the garden (a hemlock spruce or two will shut off the sight of it, and a sweet honey suckle subdue the odors of it); then you may throw over chance bits of purslane, or the suckers from your sweet corn, or a gone-by salad, and find thanks in the noisy smacking of his chops. I would not give a fig for a country house where no such homely addenda are allowed, and where a starched air of propriety must always reign, to the complete exclusion of every stray weed, and to the exclusion of the rollicking Suffolk grunter in its corner, who squeals his entreaty, and declares thanks with the click-clack of his active jaws.

"He will take on larger and clumsier proportions month by month, and will be none the worse for the occasional carding which your zealous Irishman can award him in spare hours; and when, in the month of October or November, the waste growth of the garden is abating, and the frost has nipped the bean tops, and laid your tomatoes in a black sprawl upon the ground, your Suffolk (with, say, one or two additional bags of mixed feed) should be ripe for the knife.

"My advice, at this conjuncture, would be—sell him to the butcher. Those who like pig flesh better would give you rules for cut and curing. But, while I have considerable respect for the pork family when fairly afoot and showing grateful appreciation of the delights of life and of a full trough, I have very little consideration for the same animals when baked or stewed. Charles Lamb's pleasant eulogium on roast pig is one of the most terrible instigators of indigestion that I know; and I want no better theory for that charming writer's occasional periods of bitter despondency, than to suppose him to have dined 'at seven, sharp,' upon the dish he has so pleasantly and fearfully extolled.

"I do not mean to say that exception is not to be made in favor of a good rasher of bacon at breakfast, with a fresh egg (from the cock—as a city friend once suggested in a flow of cheery, rural exuberance); nor do I think anything can be righteously said against a snug bit of clear pork in a dish of boiled, corned brisket of beef; nay, I would still further extend the exception to a crisp fry of delicate slices as an accompaniment of grilled trout, where the latter fall below a half-pound in weight; nor do I think great harm of a thin blanket of the same condiment to enwrap a roasted quail, or slivers of it to en-lard delicately a fricandeau of veal. But, as for pork chops, or pork roast, or pork boiled, to be eaten as the chief piece nutritive of a dinner—it is an abomination! Our friends the Jews have not only scriptural reason in the thing, but reasons physiological.

"And now, my dear fellow, having dispatched your pig (who should be bought for five or six dollars at seven weeks old, and should be sold at twenty—from the growth of your garden and a splicing bag of ship stuff), you will have, if you have used proper vigilance, some three to four loads of choice compost to contribute to the vegetable growth of the next season. There is a notion that manure from such a source provokes the growth of club-foot in cabbages and cauliflowers; but after repeated trials with a view to fix this averment, I am unable to do so. Club-foot is not lacking with awkward frequency; but appears quite as often, so far as my experience goes, with other fertilizers as with that from the pig stye. A good liming and fresh turned soil are, so far as I can determine, the best preventives. Another precaution, which in my view should never be neglected, is to remove and destroy at once all plants which show symptoms of this ailment.

"The cow is a more tractable subject. Of course, you wish one that never kicks, that any one can milk, that will not resent indignities, and will yield you all the milk and the butter you need, and possibly the cheese.

"I remember that a city gentleman of great horticultural (and other) ability called upon me not many years ago, and after descanting upon the absurdity of planting two acres for a crop, which could be easily grown from half an acre, he asked me how many quarts of milk my cows averaged per diem? 'Fourteen to fifteen quarts,' said I 'in the flush season,'

"'But that is very small,' said he; 'there is no more reason why you should not have cows giving twenty to twenty-four quarts a day, than why you should not have strawberries giving two quarts to the plant.'

"I was not prepared to gainsay the proposition. The truth is, I feel a certain awe of distinguished horticulturists that blinds me even to their wildest assertions. What has an humble cultivator to do, or to say in the presence of a man who has bagged his premiums at a New York Horticultural Society, and is taster *ex-officio* at the Farmer's Club?

"I did not argue the matter with him; I submitted; I acknowledged my mediocrity humbly.

"Now my dear fellow, there are cows which yield their twenty to twenty-five quarts a day, but they are very exceptional. Many such, whose private history I have known, have been fed upon their own milk with the cream taken off. This involves,

as you will admit, I think, a quick reconversion of capital, which, with children in the family, is not always practicable.

"In a general way, I should say, it would be far safer to count upon an average of twelve to fifteen quarts per day, even with the best of care. And as regards your actual purchase of an animal, I dare say you will have Wall Street friends, who will talk grandly of the short horns, and suggest some Daisy, (1397, A. H. B.) at a cost of six or seven hundred dollars, and—viewing her pedigree—cheap at that. My advice to you is, don't buy any such, unless you intend to turn breeder, and enter the lists with the herd book people. I say this, not because the short-horns are not admirable animals; but admirable animals are not always the best domestic animals,—as some of your recently married friends may possibly be able to testify.

"But a man, who, like yourself, comes to the country for a leisurely enjoyment of all country bounties, does not wish an animal that must invariably be kept under the best possible condition; he wishes a docile, adaptable creature. Even a snug native beast might meet all the ends you would have in view, without figuring largely upon the cash book.

"Or still better, a sleek Ayrshire, that shall carry in her air and horn a little show of better breeding and full returns to the milk pail. But if you have a fancy for cream that is fairly golden, and for occasional conversion of excess of milk into a little *paté* of golden butter, nothing will suit your purpose better than a dainty Alderney, with her fawn-like eyes and yellow skin.

"I am aware that the short-horn people who can see nothing good in a cow, except her figure show mathematical straightness of line from tail to the setting of her horn—sneer at the comparatively diminutive Alderneys. It is true, moreover, that there may be in them a hollow of the back, and an undue droop to the head, and possibly an angular projection of the hip-bones; but their nose is of the fineness of a fawn's their eyes bright and quick as a doe's; their skin soft and silken, and with a golden hue, (if of good family) which gives best of promise for the cream-pot. Above all they have a tractability, which, in a domestic pet, is a most admirable quality. 'Spot,' (the black and white Alderney,) the children can fondle; she can be tethered to a stake upon the lawn, and will feed as quietly as if she were in a field of lucerne: she is grateful for a *bonne bouche* from the garden, and takes it from the hand as kindly as a dog. This docility is a thing of great consequence upon a little country place where every animal is made more or less of a pet. It is not every cow that will bear tethering upon a lawn; there are those indeed who can never be taught to submit to the confinement. The sleek Alderneys inherit a capacity for this thing, and I have seen upon the green orchards near to St. Hiliers, (Isle of Jersey,) scores of them, each cropping its little circlets of turf as closely and cleanly as if it had been shorn. In way of convenience for this service, it is well to have an old harrow tooth with a ring adjusted to its top, and revolving freely, into which ring an iron swivel should be attached. To such a fixture, easily moved, and made fast in the ground by a blow or two of a wooden mallet, a halter may be tied without fear of any untwisting of the rope, or of any winding up or other entrapment of the poor beast. I give these hints because it is often convenient to give a pet cow, from time to time, some detached feeding ground, where the shrubbery will not admit of free rambling; and there are none whose habit is better adapted to such indulgence upon the lawn than the Alderneys.

"If your cow be kept up constantly for stall-feeding, an earthern floor is desirable, and by all means a half hour's run in the barn yard of a morning. A darkened shed will be a great luxury to her in fly time, and will largely promote the quiet under which she works out the most bountiful re-

turns from the succulent food from the garden. A bit of ground in lucerne,—say four rods square, (it should be in drills and kept hoed the first season) will yield an enormous amount of food material, and if convenient to the stall, your children will delight in binding it up in little sheaves for "Moolly." If such a bit of ground be so situated as to admit of an occasional sprinkling with liquid manure, four good cuts in a season may be safely counted on; nor do I know any summer herbage which cows love better. Remember furthermore, that the lucerne, as well as corn fodder, are improved by a half day's wilting before being fed. In winter the carrots and mangel wurtzel will become available; both of which any cow may be taught to love, (if teaching be necessary) by giving them a good sprinkling of meal. In the change from summer to winter diet, and from winter to summer, it must be remembered that all sudden changes from great succulence t dry food, or vice versa, is to be most cautiously avoided. Lack of care on this score is the secret of half the cow ailments.

"If I were to lay down a pleasant and productive winter dietary for your Alderney, it would be a peck of sliced roots in the morning, not forgetting a lock of sweet hay; at noon a quart or two of brewer's grains and fresh water *ad libitum;* at night a warm pail-ful of drink, into which a quart of coarsely ground buckwheat meal shall have been stirred, and another lock of sweet hay in way of night cap.

"With such food, and an occasional combing, at the hands of Patrick, (all the better if daily) I think you may count upon such golden returns of cream as will bring back a taste of the grassy spring-time."

Thus much for Lackland's Pig and Cow.

Edgewood, July 1st, 1865.

WATER PLANTS.

BY EDWARD S. RAND, JR.

Among the many classes of vegetation in the floral kingdom there is no family of plants more attractive than that which forms the subject of this article. Whether we regard aquatics in view of their brilliant and fragrant flowers, their curious and often beautiful foliage, or the numerous adaptations of peculiar structure to special ends, the whole class is particularly attractive and interesting. Yet, with the exception perhaps of the various classes of cryptogamous vegetation, there is no class of plants with which we are so little acquainted; and certainly there is none which will more richly repay attention and careful study. We do not now speak especially of the aquatic flora of the tropics, which is particularly rich and beautiful, and to which attention has been called of latter years by the discovery of the noble 'Victoria Regia' in the western hemisphere, and the importation of the gorgeous scarlet water lilies (Nymphæa) from the eastern; but we desire also to call attention to our native aquatics, which, in various forms of attractive beauty, may be found in every river shallow, pond or brook,and which cultivated in aquaria become most interesting objects of study.

Many of these plants are exceedingly minute, so much so as to require microscopic examination for a full development of their structure; and it is in these plants that the animal and vegetable kingdoms approach so nearly that the line of demarcation is, if not wholly lost, involved in great obscurity.

But, interesting as these minute creatures may be to the botanist and naturalist, it is not to these we especially would call attention, but to the plants of larger growth which are interesting from delicacy of foliage, peculiarity of structure or beauty of flower. In order, however, to really enjoy these plants, we must grow them where

they can be objects of daily observation, and in such a manner that they may be in a measure under our control; for, however near we may be to a river or pond, circumstances which we cannot control may often seriously interfere with our studies.

If we have a pond or brook where our plants can grow without molestation, we may raise many of the larger and coarser species in great perfection; but, to obtain an intimate acquaintance with the more delicate plants, we must bring ourselves into nearer relations to them, which can only be done by growing the plants in tubs or in glass aquaria, which latter mode is far preferable as enabling us to make the most accurate observations, and note each new development of beauty. It is a curious fact that many rank growing plants under this treatment assume a peculiarly fine and delicate nature: thus the common pond weeds (Potamogeton), which naturally grow in muddy shallows, and are not plants of particular interest, if planted in a glass aquaria with pure sand and pebbles, lose their coarseness, assume a more delicate growth, and become very ornamental.

Again, we may, without the aid of a green-house, grow in the open air, during the summer, some very beautiful tropical aquatics. We have thus grown most successfully the blue Lily of the Nile (Nymphæa cœrulea), the beautiful Limnocharis Humboltii, and the curious and fragrant Aponogeton distachyon.

The winter treatment of these plants is very simple, being merely the removal of the tubs to a light cellar soon after the heavy autumnal frosts. The water should be almost entirely drained off, and the plant allowed to rest; but it should never be dry; and if growth continues, it must be encouraged, and fresh water and a warm light situation given. There is always danger to the plant from rotting, especially with Nymphæas, often with Limnocharis, but seldom with Aponogeton, which is the hardiest of all, often growing and blooming all winter, even in the dark.

The aquaria in which we grow our plants are of two kinds, wooden and glass.

The former are simply old oil barrels cut in two, each barrel making two tubs. These are perfectly water tight, almost imperishable, and if painted green very ornamental; those bound with iron are the best. Care should be taken, when they are put outdoors, to set them on bricks or pieces of joist, to prevent the contact of the bottom of the tub with the ground, which would speedily produce rot.

These tubs are suitable for the growth of such plants as require a muddy soil, and whose chief beauty is in the floating foliage and bloom, such as Nymphæas cœrulea and odorata, the white and blue Water Lily, Limnocharis Humboltii, Calla Lilies (Richardia Æthiopica), and Pickerel weed (Pontederia cordata).

The glass aquaria are made of slate and glass, and may be of any size or shape; they are adapted for the growth of delicate native aquatics, affording a full view of the beauties of foliage, which can only be seen when the plant is suspended in the water.

The winter treatment of hardy aquatics is simply to remove the tubs to a shed or cellar, where the water will not freeze very deep, so that the roots may be preserved in the mud; the greater part of the water may be drained off to advantage.

The glass aquaria should in winter be emptied and stored, unless it is convenient to winter them in the green house or at a sunny window.

The most important point in growing all aquatics is to provide for the renewal of the water: this is essential to the health of some plants; with others it may be disregarded. In glass aquaria it is particularly important, as the surface of the glass soon becomes coated with green slime, which can only be prevented by a constant change of the water. If a head of water can be procured, and a constant flow kept through the aquaria, it is all that can be desired. Our practice is to renew about one-fourth of the water each day, drawing off from the bottom, and filling at the top, or simply overflowing the tub by turning water from the coarse rose of a garden water pot.

It is also well to place a couple of gold fish in each tank, and to raise in each a colony of snails, which are of great service in eating up the slime. Care must, however, be taken to proportion the animal and vegetable life in each aquaria, as an undue preponderance of either will speedly cause the water to become offensive; in regulating this, experience is the best guide.

The usual time for putting out the aquaria in the latitude of central New England is about the 10th of May; the time for housing them about the 1st of November; thus giving nearly six months of open culture. As a general rule, put out when the nights begin to be warm, and house just after the first severe frosts. We have had ice half an inch thick in tubs of Limnocharis and Apogyneton without injuring the plants.

The soil for the growth of water plants in tubs should be rich leaf mould and peat mud; it cannot be too rich, but all must be well decomposed.

In glass aquaria, fine, clear sand and bright pebbles are most ornamental, and most plants thrive well in them. It only remains to describe a few of the most attractive aquatics, premising that all our native water plants possess beauties sufficient to render them worthy of cultivation, and the beginner may find in the nearest pond enough to occupy his attention for many summers.

NYMPHŒA.—This family includes some of the most desirable plants for open culture; the flowers of all the species are deliciously fragrant; those of the hardy species are usually white, of the tropical blue, red, pink and white. The plants require to be set in rich mud at the bottom of the water, and they require a large tub as the foliage is large and spreading.

The hardy varieties are *N. alba*, native of England; *N. nitida*, from Siberia; *N. odorata*, our pond lily; *N. pygmea* and *reniformis* are half hardy species, with white flowers from China and Carolina.

The only tropical species we have grown successfully i the beautiful lily of the Nile (*N. cærulea*). The flower is sky blue, with yellow centre, and of the most exquisite fragrance. This species is half hardy, and has even endured a New England winter in the mud of a deep pond; but the plant was somewhat injured. The other species require the heat of a stove, and to be grown in a tank where the water can be warmed.

NELUMBIUM.—The only hardy species is *N. luteum*, the yellow water lily of the Western and Southern States. The flower is ornamental, pale yellow, resembling a double tulip, and the plant would probably be hardy in New England. Culture the same as Nymphœa.

Nelumbium speciosum, the species producing the sacred bean of India, is a most ornamental plant; flowers white or rose, single or double, and very fragrant. It requires hot-house culture.

EURYALE *ferox*.—The only species is a singular aquatic, every part of which is covered with stiff prickles. The leaves are about a foot in diameter, the flowers somewhat smaller than those of the Nymphœa, of a bluish purple or violet.

It is a native of the East Indies and China, and is of easy cultivation in a stove where it will seed freely with artificial impregnation.

NUPHAR.—This is a genus of about half a dozen species, all of which, except one (*N. Japonica*) are known to be hardy.—The flowers of all are yellow. Our most common species are *N. advena*, very common in rivers, ponds and ditches, and called yellow water lilies, and *N. Kalmiana*, a smaller and rarer species.

The European species are *N. lutea*, (found also on this continent, according to some authorities) *N. pumila*, much resembling the last, but smaller, *N. sericea*, native of the Danube, and *N Japonica*, native of Japan.

N. sagittefolia is a southern species which might be hardy in the middle States. All the species are of the easiest culture in rich loamy soil.

SARRACENIA.—A small genus comprising

the plants known as Pitcher plants, or side saddle flowers. They are well worth cultivating, both from their beauty and singularity.

They are not strictly aquatics, but being bog plants, require a moist place to ensure success; they do well in an aquarium on rocks just above the water, but where the roots can be in wet sphagnum.

Our most common species is S. purpurea.

S. rubra is a smaller Southern species, with beautifully curved leaves.

S. flava often produces leaves or pitchers two feet long; the flowers are yellow.

S. variolaris much resembles the last. The first species is hardy, all the rest requiring green-house protection in winter.

MENYANTHES or Buckbean.—A beautiful genus of bog, nearly aquatic plants.

Our most common representative is *M. trifoliata*, our American variety, being of stouter habit than the European. The leaves much resemble clover, whence the name 'water-clover.' The flowers are rose color and very beautiful.

The plant is of easy culture in water and bog earth.

The other species are *M. cristata* or *crista galli.*

APONAGETON.—A genus of elegant aquatics of easy culture in the open air in summer, but requiring protection in winter.

The flowers are white, with black dots, exquisitely fragrant, and of peculiar shape. The commonest and hardiest species is *A. distachyon*, which is a very free bloomer. *A. angustifolium* and *juncifolium* are species from Southern Africa.

Limnocharis Humboldtii, a most beautiful tropical aquatic, which flowers freely all summer in the open air. The blossoms are canary yellow, with black eye; last only a day, but are produced in great profusion. The plant may be grown in a tub in rich loam, in which the runners root freely; in an aquaria in pure sand, or planted in a pond where it will flower beautifully till cut off by the frost.

These are but a few of the aquatics we may grow and bloom with little care.—There are many others equally curious and beautiful, of which we may name the water target, (*Hydropeltis purpurea* or *Brasenia peltata*) the many species of bladderwert, (*Utricularia*) the water crowfoots or buttercups, (*Ranunculus aquatilis* and *Purshii*,) the water arums. (*Peltandra Virginica*) and *Calla palustris.* The large natural families of Water Plantain (*Alismaceae*) and Pond weed (*Naiadaceae*,) also contain many curious and interesting plants, which, in cultivation, present many before unnoticed beauties.

Glen Ridge, July, 1865.

NOTES ON THE MAY NUMBER.

LACKLAND'S HOUSE PLANS.

A MOST capital article, and comes pat to me, because, in my line of life, I have had to plan and contrive to remodel and make or save a new house out of numerous old ones. It is my general plan, I must say, however, to discard all old houses, further than simply to repair them and leave them in their original state; because the expense is usually as much to make the additions and changes as would build the new house entire. I, this spring, however, remodeled a little cottage, which I will give as another instance where money can be saved, and comfort obtained. The house to work upon was, as you will see by the plan, 32x24, with a rear wood-shed of 10x24. My scale is 16 feet to one inch.

After studying the matter over, the building being only one story, 9 ft. between ceiling and floor, the porch side a flat roof

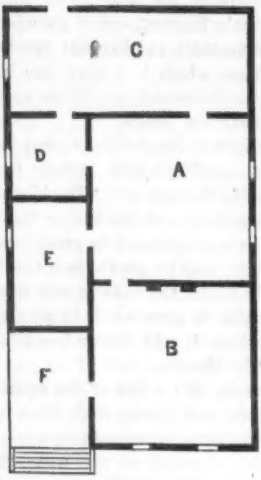

FIG. 1.

A—Dining Room, 16x16.
B—Living Room, 16x16.
C—Woodshed, 10x24.
D—Pantry, 6x8.
E—Bed Room, 8x12.
F—Porch, 6x12.

of 8 feet, and the owner only having four to five hundred dollars to expend. I planned and changed it as follows, and so as to come within his limits of expenditure.

The bay window new, the wing new, and the rear part made by cutting the woodshed in two and turning it, and filling up the centre. Floor for all the rear new, and in the reconstruction, nearly all the walls were destroyed, or so much broken beforehand, as to have to be made anew.

In old times of Lumber at 12 to 20 dollars per thousand, and labor at 12 to 18 shillings a day, this would have cost about Three Hundred Dollars; but both labor and lumber are now high.

The chimneys, three in number, are stove chimneys, all new and the whole underpinned anew, but with the old material. A wing is planned to be added on the side of the new library, the wing to be two stories and 20x24 feet; and as the house now faces the north, having a view of the Lake, the two-story wing will give fine

Here is the plan as it now stands:

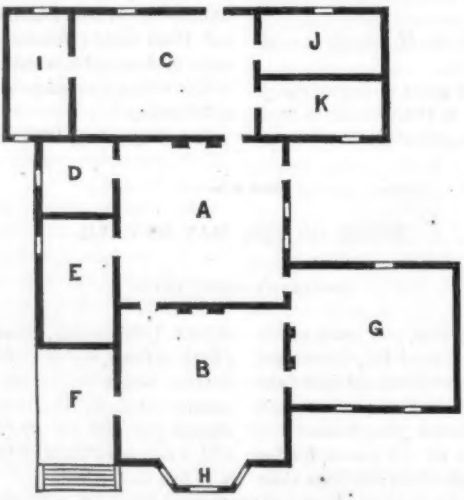

FIG. 2.

A—Dining Room, 16x16.
B—Living Room, 16x20.
C—Kitchen, 12x18.
D—Bed Room, 8x8.
E—Library, 8x12.
F—Porch, 8x12.
G—Bed Room, 14x16.
H—Bay Window.
I—Pantry, 7x12.
J—Bed, 6x12.
K—Bed, 6x12.

position for a green-house or conservatory. The owner now does not choose to incur debt, neither does his needs require more room, so the house is as above depicted.

ORCHIDS.

To amateurs and young gardeners, these articles are most valuable.

BERRY CULTURE.—Although these tales of hundreds of dollars being gathered from a few acres appear to the cotton and corn grower as munchausens, yet their truth is none the less valid. If I recollect aright, it is but a few years since a farm of 42 acres in Illinois, took the premium as yielding more of net profit than any one in the State, where farms vary from the above number to thousands of acres. The great evil of this country is, a striving for extent of territory. It is the error of inidviduals, and I think of the nation.

In cultivating the blackberry, I noticed lately a plan as follows, viz: The bushes or plants are set in rows thick, the rows ten feet apart. After they have done fruiting, the old or bearing canes are at once cut out with a long handled hook knife, then leaves or chopped straw are liberally scattered among them, and early in the spring lightly forked in and a light dressing of the mulch again added.

CULTURE OF THE ROSE.—The very best article with the most plain and correct instructions that I ever read. It is worth more to the amateur than all the books that are printed. I can only add, that all roses give better and more blooms to be replanted yearly, and, the hardy ones, of course, in October, late if possible.

If early June blooms are not wanted, then spring planting will answer equally well, but all the first formed buds of spring planted perpetual roses should be cut away before opening.

NEW ERA IN GRAPE CULTURE.—Mr. Husman has come out into the light with some of his knowledge, and he here tells what many men at the west have long known, viz: that the works of all authors to this date, however theoretically correct they may be, and valuable to the amateur, are no guide for vineyardists, where one man is expected to take care of four to six or more acres.

Why! gentlemen, the mere expense of posts, slats and upright wires recommended by one author would damp all favor of grape culture, were it not that there are abundant vineyards where one fourth or less of the expense in trellising is found requisite.

Give us more of "grape growing made easy," Mr. Husman, but be not sure that Missouri is going to grow *all* the Grape. Ohio, Pennsylvania, and even now Southern New Jersey, to say nothing of Illinois and Kentucky, produce many acres of grapes; and yet, the culture is comparatively in its infancy, and the knowledge thereof only just shadowing out.

COLOR AND CONSTITUTION OF PLANTS.—A well prepared article and evidently from careful study, but yet does not convince me that it is sound. I would know how long these experiments have been tested; the soil and condition of it, whether dry and underdrained, &c., &c.

Some years since I took the same view as here detailed and made some observations, but did not complete them. I however cannot think that the color of the petal of a flower, or the pellicle of the fruit has aught to do with the hardihood of the plant. A dark wood and dark green foliage may have to do in the ratio supposed by the Doctor. I shall be glad to read more of his observations, for, if they are not sound, he has done good in thus drawing attention to the matter and elucidating a certain amount of information.

GRAPE CUTTINGS FROM HISTORY is valuable in matter to the young learner, while FRUIT CULTURE IN SOUTH JERSEY is another of the records of a long neglected but really valuable country for growing of small fruits. Will S. B. N. tell us if the Norton's Virginia has yet been fruited at Egg Harbor City. As a Wine making grape, we have now no hardy vine of equal capacity. The pure Norton's Virginia wine equals, if it does not surpass any dark wine of any country.

Culture of the Pineapple.—A good article for the stove-house man, but I think we will never be able to grow Pineapples in this section of country at prices to meet the means of the multitude.

Ferns.—No. 1.—A step in the right direction. Our hardy native Ferns are among the most beautiful of plants, and the most neglected. They are splendid acquisitions in the construction of rock work and rustic fountains.

Raising Seedlings.—Go ahead Mr. Merrick, if you don't succeed in growing the best grape or strawberry in the world our word for it, you will have gained much information, and more than likely diffused a spirit of enquiry around your neighborhood, that will bring forth forty fold of horticultural progress.

You ask, what varieties of Strawberries to hybridize? I would advise Hovey's Seedling and the Albany. The one a large firm berry, and the other so very productive.

Reuben.

WINE MAKING IN NEW MEXICO.

BY J. G. KNAPP, MESILLA, NEW MEXICO.

The making of wine in the native vineyards of New Mexico is of the most primitive character imaginable. It rather reminds one of the "treading the wine-press" in Judea, than of descriptions of wine making in France and Germany, as copied by the vintners of America. The theologians, here, could correct many of their ideas about the occult meaning of many passages of the Scriptures, by studying the habits of these descendants from the old Spaniards, in this as well as in many other respects.

The grapes having matured, which is in September and early October, and gathered in the peculiar saucer shaped basket, woven from the long leaves of the *Amoles* (Spanish Bayonet), are carried to the house at which they are to be crushed. Here they are rinsed with water, to remove any dirt which sticks to them from the irrigations, and dried. No water is allowed to enter into the juice. They are then deposited in a trough cut in a large cotton wood log, or in a half barrel tub, for crushing, a drain having been first provided to let off the juice as it may be set free. Some remove the berries from their stems; but generally they are not removed. There being a foot and a half or two feet of grapes in the trough, a man, with his clothes rolled up, and bare footed, gets in and commences the work of crushing by stamping upon them. When the berries are all crushed, the pomace remaining in the trough is placed in a gunny sack, and pressed under a lever press. This is usually constructed by taking advantage of a tree, in which a hole or notch is cut, and a long pole is used for a press, with weights attached, somewhat as I have seen cheese pressed.

After the juice has thus been expressed, comes the fermenting process. For this purpose a close dark *adobe* room is prepared, with an earth floor and *adobe* roof, around which two strong beams are arranged about three feet apart, and six feet from the ground, for the purpose of holding the wine sacks, receivers or fermenting vessels. These are constructed by sewing with raw-hide a cow skin to four sticks, fastened together about two feet square, two of which extend out far enough to rest on the beams in the wine house. The hides being green, soaked soft, hang down, hair outside, like a pouch, and will contain from 25 to 50 gallons each. On the front side of the sack, near the bottom, a small round hole is cut, and a wooden plug inserted. This is for the purpose of drawing off the liquor. These being in place in the wine room, the new wine is transferred from the vat or press to them, until they are entirely filled. As

soon as the first fermentation has taken place, a cover is prepared for the sacks, by placing a cover of sticks woven together with raw hide, and just the size of the mouth of the sack; and over this is placed a layer of mud mixed with straw, so as to render them nearly air tight. In this condition the wine is kept until the winter months, when it is racked off and put in tight casks or bottled.

In a few instances a quantity of the fresh juice is boiled down until it is quite thick, and then this is put into the wine to add to its strength. This causes a deep red color, and a muddy character to the wine which cannot be clarified out; but it adds greatly to its strength and keeping quality. Without this addition, or clear sugar, which would be far preferable, the native wine, unless closely corked in glass, will not resist the heats of the first summer. Sometimes the wine is racked from one sack to another. This improves its purity, but injures its keeping properties by bringing on a second fermentation.

Wine fermented in new sweet hides is far preferable to that kept in casks. The hides part with a portion of their gelatine to the fresh wine, and thus retard the fermentation, at the same time that it clarifies the wine. Hides never can have their inner surface rotted or decayed by being in contact with wine or water, and thereby impart a woody flavor to the wine. A portion of tannic acid in the wine leaves it and unites with the green hide, so that the same will in a few years become almost tanned; and this tends to its preservation. After the wine is taken from the sacks, they are turned upward and left in their places for future use; and require no soaking out or smoking with sulphur when again required.

Water is added to the pomace; and the scum of the wine is also used in making vinegar. The native wines bring to the vintner from two to three dollars a gallon; and under the present internal revenue, it has gone up to four and six dollars. The light wines are all consumed during the first eight months after they are made. Those that are strengthened keep, if undisturbed, for years. All are too sweet to suit the taste of those who only drink the manufactured wines in the States, or those made from the sour grapes of Germany and the States. The grapes of New Mexico are very sweet, almost without aroma, except the white, or *muscatel*. As they are never worked up until the berries commence drying on the vines, the tartaric acid is fully developed, and scarcely any other acid is found in them. In this the wine differs essentially from the Northern wines. This acid being far less soluble in the wine than are the acids of the Northern grapes, the grapes of New Mexico will not make the sour wines, but more resemble the sweet wines of Sicily than of France and Germany.

By the simple and primitive process above described, an old strong set vineyard will give a yield of $2,000 to the acre, with an outlay of less than $300 in tending the vines and manufacturing the wine, at old prices; and double that sum under present rates. Yet, strange as it may seem, but few persons are engaged in vine growing, and not one half enough is produced for home consumption.

FERNS.—No. 2.

In our former paper on ferns, we spoke of them as being classed under two divisions: the Annulatæ, those in which the thecæ are provided with marginal ring, which operates in the dispersion of the seed, and the Exannulatæ, which have no such appendage. The first class is divided into six families; the second contains but three. According to Newman, who is our chief authority, the first in order of these various families is the Adiantacæ, of which the most elegant specimen, probably, is the

Adiantum Capillus Veneris, or the True Maiden Hair.

The distinguishing feature of the family of the Adiantacæ is that the thecæ, or seed cases, are covered by a portion of the frond. Sometimes this appears like the inclusium, or membrane which ordinarily covers the thecæ, at other times it is evidently a portion of the frond itself. In the first genus of the family of which we are speaking—the Adiantum—the masses of thecæ are borne in circular clusters on a reflexed portion of the edge of the frond, and in the Maiden Hair they appear like oblong bodies rising from the edge of the leaf. This beautiful fern is usually found on moist caves or rocks near the sea coast, where it takes root firmly in the stony crevices. The young leaves appear in May, and are matured in July. The foot-stalk, which is of a rich crimson brown, divides at the base of the leaflet, and forms a ridge from which branch off strong but very delicate veins of a whitish green. These veins again subdivide and fork off into pairs at about the middle of the leaflet, and each vein so formed forks a second time before it reaches the margin of the pinnæ where the masses of the seed vessels lie, and ornament the leaf with a sort of braided border of exquisite beauty.

It is an old notion of naturalists that ferns produce no seed that is visible. And this idea of the seed being invisible was carried out into the idea that if any such thing could be procured, it would render him who wore it also invisible. Shakespeare makes one of his characters in Henry IV say, "we have the recipe of fern-seed, we walk invisible." And Ben Jonson says, "I had no medicine, sir, to go invisible, no fern-seed in my pocket." We have seen, however, that the fern does bear seed in immense quantities, and that ample provision has been made in the structure of the plant, for dispersing, as well as preserving the seed from injury during its progress to maturity.

We come now to the genus Lomaria, of which the Lomaria Spicant is one of the most conspicuous. The characteristic which distinquishes the Lomaria is that the thecæ are continuous, placed in line on the pinnæ which they nearly cover, while they in turn are covered with a continuous inclusium.

The singular and very beautiful appearance which this fern presents, from the mixture of dissimilar leaves on the same plant, and from the grace and vigor with which its noble tufts of vivid green rise from the earth and cluster in groups among the other ferns and flowers which adorn the mossy banks, attracts much attention and admiration. It is hardly excelled in beauty by any other fern; for though the Osmunda regalis may tower grandly above it, and the Shield ferns spread their broad fronds in unrivalled dignity, yet the grace of this plant, and the peculiar appearance which its narrow, comb-like fronds present, always attracts the eye of the admirer of nature, and compel his attention, whatever other beautiful objects may be near it.

The third genus of this family—the Adiantacæ—is the Pteris, known in the British Islands as the Brachen, and in this country as the Brake.

This is one of the commonest ferns, and is found every where in the wild districts, but it is one of these truly wild plants that disappears before cultivation. Its average height is from two to three feet, though in moist, shady woods it frequently grows to double that size. The mark of this group of ferns is that the thecæ form a continuous marginal line covered with a continuous inclusium. The young fronds which are tender, and often cut off by early frosts, come up like those of most other ferns in a circular form, but bent or doubled back, the leafy part being pressed against the stem. The generic name Pteris is given on account of its plume-like growth, and was that by which the Greeks called the whole tribe of ferns.

This fern has been thus described, from a specimen in the hands of the writer:—

"Around every part of each lobe runs a delicate border of a velvety appearance, and light brown hue. It follows the margin of the leaf most exactly, and is in due proportion to the size of the green leaflet on which it reposes, and consequently rather narrower on the upper than on the lower branches. The lowest pair of pinnatæ, and the pair next above it are deeply notched; and as the border continues to follow each part of the edge, it here necessarily assumes the form of a Vandyke. This beautiful border consists entirely of myriads of thecæ or seed vessels, which, if examined under a microscope, are seen to be little globular cases of a crisp and shining material, in each of which is contained a countless multitude of minute grains like a brown powder.—These are the organs of reproduction."

This is not only the most abundant, but the most useful, perhaps, of all the ferns. In Europe it is used for thatching, for litter for cattle, for packing fruit, and in some places for fuel. It has, also, medicinal qualities, and contains so much alkali that its ashes are used for making soap and glass.

NOTES.

BY T. T. S.

FRUIT TREE BORERS.

As it is both better and easier to prevent than to cure, I would recommend the following article as a cheap, lasting and good preventive against the working of the Borer: Take of Fish oil and Sulphur, and make a moderately thick paint; bring the soil from the base of the tree and spread on the paint as low down as possible and as high up as needed, say a foot or so. The more offensive the oil is in smell the better. It should be applied in May or June.

NOXIOUS INSECTS.

It can not be denied that man has no enemy so great, so to be feared,—War, Pestilence, and Famine excepted,—as is presented in Insect life. Though as individuals, they seem unworthy of notice, yet in their aggregate they hold tremendous and awful possibilities.

To-day, preyed upon by thousands of birds and by themselves, subject to a multitude of destroying agencies, yet what a sway they hold over the destiny of man. With every fruit he plucks; with almost every vegetable he cultivates; with the grain of his fields, and the flocks of his pastures. He has to contend in some shape with destructive Insect life.

Let those providential agencies that hold them in check, but once cease or partially so, and the angel of destruction would literally be let loose upon us.

Each year brings with it some new development of destructive Insect life. The older we grow, as a country, the greater become their ravages. Can too much attention and study be devoted to a subject that is so closely related to our interest.

Every means that tends to the destruction of our enemies should be carefully cherished.

I would here mention how last season I "flanked" a few specimens of Insects that sought to rob me of the rightful fruit of my labor. Discovering my currant bushes covered with worms, I gave them a sprinkling of water, and then a light dusting of *Cayenne Pepper*. The next morning found my bushes free. Finding my squash and cucumber vines infested by both the yellow bug and the large black one, I gave them a slight sprinkling of water, in which I soaked some cayenne pepper pods, and my vines were effectually cleared. They probably thought the seasoning too high, and sought a milder diet. I applied to roses and other things invested with lice, with the best results. Where the remedy can be applied I deem it one of the best.

HORNET RASPBERRY.

There seems to be some difference of opinion about the hardiness of this variety. I have cultivated it without protection for four years, and since the first year has stood the winter well, better than Brinckles' Orange and some other varieties. In point of hardiness, I consider it equal to the varieties commonly in cultivation, and in size and flavor unsurpassed.

PLUM TREES.

In a yard, formerly the site of an old ashery, stand several large and old Plum trees. The soil about them is composed largely of ashes, and on these plum trees their is no sign of black knot, and the fruit is always perfect, while all about them through the whole place, hardly a tree is to be found but what is affected. Why should these be exempt, but for the reason that the same cause that makes the fruit drop causes the knot, viz.: "The little Turk."

GRAPE CUTTINGS FROM HISTORY.—No. 4.

BY JOHN S. REID.

We now come to examine the grape and wine culture of that most wonderful and learned people called the Greeks; and to report to a few of the modern Athenians the result acquired by them in the production of this glorious beverage. Time, which has destroyed empires and dynasties, levelled the marble columns of Athens and Corinth, prostrated the Ephesian Temple, and almost obliterated the birth and erection of the Pyramids, has dealt lightly with the "nectar of the gods"; and history has embalmed the perfume and strength of their choicest wines, so that one almost thinks, in conning over the musty pages of Grecian history, he scents the aroma of the Maronean and Lesbian wine.

But let us refresh our geography a little before we enter into the famous vineyards, and learn where this most wonderful country is situated, so that our readers may thoroughly understand the place as well as the latitude in which the "Islands of the Blest" are found.

Nestling on the bosom of the glorious Mediterranean, in lat. 36° to 40° are found the beautiful isles of Lesbos, Scios, Samos, Delos, Lemnos, Rhoda, Messina, Zante, and the Grecian main-land, where burning Sappho loved and sung.

The ancient wines most noted for their superior qualities are the Maronean, the Chian, the Corinthian, the Cyprian, the Lesbian, the Ismarian, the Tæian, the Rhodian and the Leucadian. The Pramnian, the production of Attica, a red but sour wine, is reported as being somewhat like our Port, but more harsh and unpalatable; and such was some of the wines of Corinth and Sapa.

The islands of Crete, Cyprus, Rhodes, with the territory along the coast of Thrace, and Ismarus, produced excellent grapes and wine, chiefly of a white or amber color; except the Maronean, which was a black sweet wine, of which Homer writes with much delight, and drank it with as much pleasure. Some ancient writers prefer the wines of Chios and Thasos before all others, except the Clazomenian, the product of Ionia.

In strength, they far surpassed any of our modern wines, it requiring from three to twenty measures of water to reduce them and make them palatable for the feast. It is supposed that they were condensed to this state or degree of syrup or consistency by the process of "smoking" to which they were subjected. The manner in which this was done is this: a furnace or kiln was erected, named the amphoræ, where earthen vessels well glazed were placed, full of

wine, containing from four to ten gallons over the kiln, and kept there until the watery particles were chiefly evaporated; after which it would keep for ages.

The Greeks, it is said, were acquainted with more than fifty varieties of grapes; and they gave much attention to the culture of the vine, being acquainted with the best methods of cultivating this plant, as well as in the manufacture of the wine; and these have been handed down to us, differing very little from "our most improved method" of the present day. They were extremly fond of the odoriferous quality, and would often put in their must dough kneaded with honey, mixing with it aromatics, flowers and fruits; giving to each a separate aroma, so that on opening an old cask the odor of roses, violets, and other fragrant flowers, would fill the wine cellar, gratifying the sense of smell as well as the taste.

At the feast, it was not uncommon for the guests to mix the rich wines of Byblos, Erythræ and Lesbos, with the light wines of Heraclea and Mende. But it was not alone in the islands that wine of a superior quality was made, for the finest situations for vineyards abound on the slopes of the main-land, the Morea having formerly furnished the Malmsey and Malvasia grape, from which the sweet wines of Malaga, Madeira and other famous places obtain their name; and the islands of Candia and Cyprus, under the rule of Venice, when that republic was mistress of the Adriatic, supplied Europe with the choicest qualities and brands.

The relative strength of the ancient when compared with the modern wines is as follows:

Port,	25°.	Maronean,	40°.
Madeira,	22°.	Lesbian,	30°.
Sherry,	19°.	Rhodian,	26°.
Malaga,	18°.	Zante,	17°.

So that, when the *feast* was not of the Bacchanalian order, the guests usually mixed their pure wine with water, as two to five.

The climate and soil of Greece are highly favorable to the cultivation of the grape; and nothing more is wanting to produce wines of superior quality except that skillful mode of preparing the soil and vine. But at present the vineyards are kept in the worst condition; and the manufacture of the wine is a disgrace to that or any other country, the vintners mixing with it salt, water, pitch, resin and lime in such undue proportions as to destroy both its fine aroma and taste. Wherever the Turkish arms have entered, desolation has followed in their train, with wretchedness and apathy. The modern wines of Greece are of the sweet and aromatic order, whilst the red muscadine of Tenedos and white muscadine of Smyrna vie with the best Hungarian; yet the red wine of Ithaca once was preferred to either, whilst the vineyards of Rethymo and Kissanos rivalled the choicest Rhodian Cimmandaria.

Perhaps the Greeks of the present day may improve, under their own government, the horticulture of their fathers, and again make that beautiful archipelago the garden of the world: unless ages of bondage and misgovernment have broken their spirit, and destroyed their love for the improvement of their country.

Here was the birth place of philosophy of literature, of the arts and sciences; here Homer and Hesiod, the fathers of poetry and history, lived and flourished; here Socrates, and Plato, and Aristotle, and Xenophon, have enobled humanity; here too was the throne of Jupiter, the father and king of the gods, and all of the lesser deities; indeed, almost every thing is here that could wake up the dormant mind to action, and arouse the soul to become again what it was in the days of its early nationality, when Greece was the LIGHT of the world.

The ancient Greeks have a beautiful tradition concerning Minerva, that when Neptune and Minerva at one time contended about the name of a very famous city, said to have been built by Cecrops, it was re-

solved that whichsoever of these deities conferred the more excellent and useful gift on man should give their name to the new city.

Neptune brought a horse, and presented it as his gift; when Minerva instantly produced an olive out of the earth, and presented it as her choicest gift to man, when the assembly of the gods adjudged it to be the more useful; and the naming of the city was awarded to Minerva, who called it Athens, from her own Greek name. Thus horticulture was honored by the gods at that early day.

It is said that under Cecrops, 1600 years before Christ, the culture of the vine was brought into Greece, although Noah, as we have before shown, planted a vineyard 2350 years before Christ, on the slope of the Armenian Mount Ararat; and that from this source the vine has come, to Asia Minor, Palestine, Egypt, Greece, and Italy, of which country our next "Cuttings" will be.

HOME CUTTINGS.

I regret that this month my Home Cuttings are so valueless, for the frost of the 17th of May last *nipped* almost every vine, and laid low in dust my hopes and prospects for a grape crop for the present season.

My young vines were all seriously injured, and those *first* fruiting lost all their bloom. The Delaware, that I deemed hardy, equal to the Clinton, was cooked like a bean; so were all of the new varieties, Anna, Hartford, Herbemont, Union Village, Iona, Israella and Allen's Hybrid, but most of all my Page; the last was wholly destroyed. And now the excessive and continued rains have covered with mildew my old and larger Catawbas; so that I may say that, *this season*, my grape crop will be a complete failure.

On the day after the frost, I went to several small vineyards to examine their state, and found them *swept* every whit as bad as my own.

After such a splendid opening and showing in the spring, I regret the result of my examination, but must bear it with resignation, hoping for better luck next year, and a new variety *hardy* as the Clinton, and good in *quality* as the Delaware.

PLEASURE GROUNDS.—DESIGN, &c.

BY C. N. B.

The increase of the inhabitants of our pleasure grounds within the last few years, places the taste and patronage which are bestowed on gardening in a very conspicuous point of view.

The style in which grounds are now usually laid out, may be characterised in one short sentence. "Convenience is endeavored to be rendered as attractive as possible, by combining it with the beautiful and appropriate." The convenience of the inmates of the mansion is studied by having the kitchen and fruit gardens near the house, fully extensive enough to supply all the wants, and kept in the appropriate beauty of order and neatness, without any extravagant attempt by the mingling of useful trees, or planting its cabbages, etc. in waving lines. In the flower-garden which immediately joins the house, dry walks, shady ones for summer, and sheltered ones for the more intemperate seasons, are conveniently constructed.—There accompanying borders and parterres are in form, such as are most graceful, whilst their inhabitants distinguished for their fragrance are distributed in grateful abundance; and those noted for their elegant shapes and beautiful tints are grouped and blended as the taste of the painter and the harmony of colors dictate. The lawn from these glides insensibly into the more

distant ground occupied by the shrubberies and the park. Here the genius of the place dictates the arrangement of the levels and of the masses of trees and water. Common sense is followed in planting such trees only as are suited to the soil. A knowledge of the tints of their foliage guides the landscape gardener in associating them, and aids the laws of perspective in lengthening his distant sweep. If gentle undulations mark the surface, he leads water among the subdued diversities, and blends his trees in softened groups, so as to form light glades to harmonize with the other parts. If high and broken grounds have to be adorned, the design mingles waterfalls with darker masses of darker foliaged trees, and acquires the beauty peculiar to the abrupt and grand, as in the former he aimed at that which is secured by softer features.

Design.—"Consult the genius of the place before you determine upon your design" is sound advice; for in gardening, as in all fine arts, nothing is pleasing that is inappropriate. "A plain, simple field," says a writer of good authority, unadorned, but with the common rural appendages, is an agreeable opening; but if it is extremely small, neither a hay-stack, nor a cottage, nor a path, nor much less all of them together, will give it an air of reality. A harbor on an artificial lake is but a conscript; it raises no idea of refuge or security, for the lake does not suggest an idea of danger. It is detached from the large body of water, and yet in itself but a poor inconsiderable basin vainly affecting to mimic the majesty of the sea.

When imitative characters in gardening are egregiously defective in any material circumstances, the truth of the others exposes and aggregates the failure. But the art of gardening aspires to more than imitation; it can create original characters, and give expressions to the several scenes superior to any they can receive from illusions. Certain properties and certain dispositions of the objects of nature, are adapted to excite particular ideas and sensations; they require no discernment, examination or discussion, but are obvious at a glance, and instantaneously distinguished by our feelings, Beauty alone is not so engaging as this species of character; the impressions it makes are more transient and less interesting; for it aims only at delighting the eye, but the other affects our sensibility. An assemblage of the most elegant forms in the happiest situation is to a degree indiscriminate, if they have not been selected and arranged with a design to produce certain expressions; an air of magnificence or simplicity, of cheerfulness, tranquility, or some other general character ought to pervade the whole; and objects pleasing in themselves, if they contradict that character, should therefore be excluded. Those which are only indifferent must sometimes make room for such as are more significant—may occasionally be recommended by it. Barreness itself may be an acceptable circumstance in a spot dedicated to solitude and melancholy.

"He is no philosopher," says a writer, "who neglects a certain present good for fear that in some future period it may be absurd; but in the encouragement of gardening, whilst an immediate good is obtained, there is no fear of its perversion in after days. Its diffusion among the poorer classes is an earnest or means of more important benefits, even than the present increase of their comfort. The laborer who possesses and delights in the garden appended to his cottage is generally among the most decent of his class, he is seldom a frequenter of the ale-house; and there are few who are so senseless as not readily to engage in its cultivation when convinced of the comforts and gain derived from it.

Gardening is a pursuit adapted alike to the gay and recluse, the man of pleasure, and the lover of science. To both it offers employment such as may suit their taste; all that can please by fragrance, by flavor, or by beauty; all that science may illustrate; employment for the chemist, the botanist, the physiologist, and the meteorologist.

There is no taste so perverse as that from it the gardener can win no attention, or to which it can afford no pleasure. He who benefitted or promoted the happiness of mankind in the days of paganism, was invoked after death, and worshipped as a deity. In these days we should be as grateful as they were without being as extravagant in its demonstration; and if so, we should indeed highly estimate those who have been the improvers of our horticulture; for, as an ancient writer says, "it is the source of health, strength, plenty, riches, and honest pleasures; it is amid its scenes and pursuits that life flows pure, the heart more calmly beats."

Pokeepsie, June 1st, 1865.

THE NEW ERA IN GRAPE CULTURE—No. II.

BY GEORGE HUSMANN, HERMAN, MISSOURI.

As I am not exclusively writing for rich folks, (who can follow grape culture any how) but more especially for the poorer class; for those who have nothing but their willing hands and active brain to command grape culture with, I will now refer to a plan which has been followed with good results to both parties, the wealthy and the poor, and which we call here, "tenanting, or growing grapes and vines on shares." I will here also give my own experience.

Some eight years ago, I bought a piece of wild land at $2 50 per acre, which, I thought and still think, is well adapted to grape culture. In 1861 I made the first beginning on it, and made a bargain with a poor but industrious emigrant of the following kind: I was to build him a small house, furnish the plants and trees, and pay him $150 per year the first two years; he to do the labor, fencing, clearing of ground, planting, etc.; he to have one half of all the produce of all the vines and trees, and I to have the other half. This contract to last an indefinite length of time, until one of the parties should get tired of it, when he had to give the other six months' warning. No compensation to be allowed after the first two years, except one half of the produce. I built him a small but comfortable house, and my tenant went to work with a will.

The first spring he fenced, cleared and planted about three acres in grapes, and four in orchard, mostly pears and peaches. Made during the summer, about $250 worth of layers, of which he received one half, and raised corn and vegetables enough for his family. This, with the $150 I paid him annually, enabled him to live with his family. The second summer he made about $1000 worth of plants, of which he received one half again. The third summer the produce was about $1600, making $800 as his share; and the fourth year I have paid to him $2600 as his share of the proceeds in plants and fruits; and if the rebels had not unfortunately emptied all of the wine, he would have had at least $500 more. This, the fifth year, he will have at least $6000 as his share of the proceeds, and it may be a thousand more. During that time he has sent money to his brother in Germany, to pay the passage for him and his family; has bought a piece of land joining mine, and leased it to his brother on about the same conditions under which he holds a lease from me, he preferring to remain a tenant on my land. The land, house, plants, and all have cost me, so far, about $1800; net proceeds up to last spring, $3,100. If we consider that these were the first four years, that in 1863-64 nearly all the buds on the vines were killed by the extreme hard winter, and that the rebels destroyed about $500 worth of wine, it will be seen that we have both found it a profitable investment. It may be fair here to state,

that he and his family are of the most industrious, hard working, and intelligent people I have ever met, and that the greater part of this was made by raising plants of the best varieties. Not a cutting was wasted; and as I take all the plants he raises at a fair wholesale price, he has no further trouble in selling them. But, Messrs. Editors, here is an example of a man, entirely without means, making a comfortable living by grape growing the first few years, and he is now in a fair way of becoming wealthy in a few years, while the proprietor of the ground has every reason to be satisfied with the capital invested. Can not others go and do likewise? There are thousands of acres of the best grape lands to be had yet in this State, at the rate of from $5 to $10 an acre.

Has there ever been a better opening for the poor industrious laborer than he can have in Missouri now? I have lately bought some 500 acres of splendid grape lands, at an average of $5 50 per acre, and am ready and willing to welcome a dozen of industrious families to go to work on them—others will do the same. Rest assured they can soon earn enough to buy land of their own if they choose. Now, that we have perfect peace and quiet again, we look forward to a flood of emigration; and it will come. It will not be long before land will rise to treble its value now; flourishing farms and vineyards will be where every thing is wilderness yet; and oh! most glorious thought of all, they will be worked by *free* and happy people.

Fruits of all kinds look most promising. We have had a most abundant crop of cherries and strawberries, plenty of pears, peaches, and apples, and as to grapes, there never was such a prospect. The trellis is fairly groaning under the load of fruit, and our coopers have to work day and night almost, to prepare the multitude of casks which will be wanted to receive the noble grape juice.

To those of our Eastern brethren, who wish to try their fortunes West, we offer a kind invitation to come and judge for themselves. They may rest assured of a hearty welcome.

HERMANN, Mo., June 22d, 1865.

MORE NEGLECTED FLOWERS.

BY J. M. MERRICK, JR.—WALPOLE, MASS.

I WISH to call the attention of the HORTICULTURIST readers to three or four plants natives of the northern States, and now (May 19) in blossom, which have never been promoted to the dignity of garden culture, although they fully deserve that honor.

I mention first the HOUSTONIA (Oldenlandia Cærulea), a well known delicate little plant, with bluish white flowers with yellow centre, in blossom from May to August, chiefly to observe that it would form a very pretty contrast if grown with the dwarf Polygala, which is about the same height, and blossoms at the same time.

POLYGALA PAUCIFOLIA. This pretty plant grows in every wood and pasture, sending up from a running root stock slender few-leaved stems, bearing flowers of the most exquisite purple, tipped with white. A single blossom is not very striking; but a bed, or a well rounded bouquet, such as I have before me while writing, is very effective.

A beautiful plant, confined, so far as my experience goes, to a very few localities, is the CORYDALIS AUREA. The only place where I have found it is but a few square feet in extent, although I am told it occurs in Roxbury, in this State. Belonging to the same family as the Dielytra (the Tumariaceæ); it resembles that plant in foliage, but differs from it in its blossoms, which are

red, orange, and pink, and are produced in great profusion from the middle of May till late in June. My plants are in full flower, and have been so for three weeks. It is a biennial, growing readily from seed, and is very ornamental.

As a companion for the Lily of the Valley, I venture to suggest the DRACŒNA BOREALIS, a very handsome plant, fond of damp soils, and flourishing best when its roots are actually wet all the time. From its three or four broad base leaves, it sends up a scape from six to eighteen inches high, crowned with an umbel of five or six delicate yellowish green lily-like flowers, succeeded by an oval berry of a bright and noticeable blue. It usually blossoms in June, and its berries are conspicuous till September. This year it is in full bloom in the middle of May, and I have plants under cultivation, removed while in full bud, with perfect success.

I have never met with any cultivator, myself excepted, who has taken pains to transplant the Indian Turnip, ARISÆMA TRIPHYLLUM, from the woods to his garden; but a plant so curious and so easily cultivated deserves a place in every collection where there is a foot or two of damp and shaded soil to spare. Under favorable conditions the Arum grows to a monstrous size. I saw specimens last year that were three feet and more in height. It is a perenial, grows from a corn, and is easily transplanted.

If the reader's garden has a swampy, boggy spot, shaded and unfit for most garden plants, let him transplant from the woods the SARRACENIA PURPUREA, and try his luck with the most curious production of nature our swamps afford. It is hard to say which are more striking, the pitcher shaped leaves of this plant, almost always half full of water, or its odd, upside down blossoms, unlike anything else in the world. I have transplanted it in bud, and kept it growing in a pot for some time, by cutting off half the leaves; but it needs its native habitat for perfect development, and is rather impatient of removal.

The CALYPSO BOREALIS, whose flowering season has now gone by, would be a great treasure if it were not so very rare; but I have never seen it, nor have I seen any one who has been successful enough to find it in this part of the State.

A rich, shady cedar swamp affords the botanist, who has his eyes open, a fine chance to collect rare and curious flowers.

I could take the reader to one where, without stirring, from his standing place, he could gather all the plants mentioned above, except the Corydalis, and besides these the Bellnort, Smilacina, Orientalis, and Golden Thread; while a walk of a few steps would bring him to the Corydalis, and a few weeks later to the Calopogon, and various kinds of orchis. Of these, and later flowers, I may speak in a future article.

THE ACTION OF METALLIC SALTS UPON THE GROWTH OF PLANTS.

BY J. M. MERRICK, JR.—WALPOLE, MASS.

Several years ago, when I was assistant to Professor Horsford, the professor of Chemistry in Harvard University, he was consulted by one of the parties to an important lawsuit, where chemical principles were largely involved; and where the main question turned upon the action of copper fumes and scoriæ on vegetation. We made many hundreds of analyses of soil, grass, bark, and moss from the neighborhood of the Copper works, and finding copper everywhere, we undertook experiments in watering plants with solutions of copper, arsenic, and other metals injurious to their growth. Having kept no minutes of these experiments for my private use, this summer, I made the investigation in poisoning plants, which are given in the following pages.

A solution of sulphate of iron, of eight grammes for the half litre, was taken as a

standard, and solutions of acetate of lead, chloride of tin, sulphate of zinc, sulphate of manganese, sulphate of copper, and bichloride of mercury were made, of such strength that equal measures, should contain equivalent (*not* equal) quantities of the respective metallic bases.

Seven Triomphe de Gand strawberry plants, as near alike as possible, and seven small cauliflower plants, were transplanted into pots of uniform size, and, beginning on the first day of June, each plant was treated with fifteen centimetres of the above named solutions per day, and all the plants were watered with clear water twice a week. The following are the results:

1st. Strawberry plants subjected to the action of acetate of lead, no change till

June 10—Slight blackness on stems.
" 17—Stems a little decayed.
" 23—Two large, and one small leaf remaining.
July 2d—Two half healthy leaves left.

Cauliflower with acetate of lead, seemed wholly unaffected.

July 2d—Strong and growing.

2d. Strawberry treated with chloride of tin, no change noticeable till

June 9—Stems blackened.
" 17—Stems decaying.
" 21—Stems more decayed.
" 30—Entirely dead.

Cauliflower plant treated with chloride of tin in perfect health, July 2nd.

3rd. Strawberry plant treated with sulphate of zinc, no change noticeable till

June 10—Stems blackened.
" 17—Outer leaves gone.
" 23—One leaf remaining.
" 25—Entirely dead.

Cauliflower treated with sulphate of zinc: no change noticed till

June 23—Leaves shrivelled.
July 2d—Entirely dead, having decayed rapidly.

4th. Strawberry plant treated with sulphate of iron, no change observed untill

June 10—Stem show slight decay.
" 17—Outer leaves going.
June 22—Leaves black and decaying.
" 30—Entirely dead.

Cauliflower plant treated with sulphate of iron.

July 2d—Leaves slightly shrivelled, otherwise healthy.

5th. Strawberry plant treated with sulphate of manganese, no change perceptible till

June 11—Slight blackness on stems.
" 16—Apparently healthy.
" 23—Several leaves dead.
" 30—Two healthy leaves left.

Cauliflower plant with sulphate of manganese, unchanged till

June 23—Leaves shrivelled.
July 2d—Leaves badly shrivelled.

6th. Strawberry plant with sulphate of copper, unchanged till

June 10—Stems decaying.
" 23—Three leaves remaining.
" 29—Entirely dead.

Cauliflower plant with sulphate of copper unchanged till

June 23—Considerable decay.
" 30—Rapid decay, almost dead.

7th. Strawberry plant with chloride of mercury, no change perceptible until

June 7—Stems blackened.
" 11—Stems rapidly decaying.
" 17—Outer leaves dead.
" 19—Whole plant entirely dead.

Cauliflower plant with chloride of mercury, no change observed until

June 17—Somewhat affected.
" 25—Badly decayed.
" 28—Entirely dead.

These experiments are interesting from one point of view as shown how much better cauliflower plants can resist poisonous agencies, than strawberries, and what is true of the cauliflower will probably hold true of all plants of its class.

The action of the corrosive sublimate was most rapid, as may have been foreseen, but how a cauliflower can *grow* when daily watered with a strong solution of sugar of lead is mysterious.

The action of the iron and copper salts

were about the same, although it might have been supposed that copper would act more energetically than iron.

The first signs of decay were blackening of the stems, then the stems wilted, and last of all the leaves shrivelled. The base of the stem in all cases was affected first. The roots were black and dead. I trust some reader of the HORTICULTURIST will continue these experiments on other plants, and give us his results. I should suggest the use of weaker solutions, so that the experiments might occupy a longer time, and slighter changes in the health of the plants be noticed.

NOTES ON THE JULY NUMBER.

PRUNING PEAR-TREES.—As remarked by the Editor, this is a matter more preached upon than correctly practised; and the article copied is perhaps the best instruction yet in print. Nevertheless, is there not an error in M. Du Breuil, so far as the time of first pruning? He says: "Do not prune the first season after planting." Now, we find that all our young trees, when obtained from the nurseryman, come with mutilated roots; and, if we leave all the buds or top without cutting back, we have a puny weakly growth, and often death in August. But, if we cut back our tree from eight to twelve inches, from the insection of the bud, when the roots start, two to four buds push vigorously. These, if managed and pinched back in early July, will give by the last of September a good formed bush, on which to work next year. I have recently had an examination of some proof sheets on this subject, now in press by the Ohio State Board of Agriculture, written by F. R. Elliott, of Cleveland. The matter is there treated in a plain, practical way, carefully and elaborately illustrated for the use of the uninitiated.

LACKLAND'S GARDENER.—Our Edgewood friend has given us an account of Lackland's gardener which is a literal record of every day experience. In summing up, however, he does not despair of his friend, but expects yet to see him grow verbenas, &c., although his cabbages have died. Judging from our experience, Lackland obtained more for his money than most amateur men do who hire what are termed "gardeners." But, so long as our Petroleum and Shoddy Aristocracy will *pay* for *gardeners* who have had charge of the Duke Buccleugh's place, and astonished the old country with their skill, so long as men who hire will pay more for impudence than brains, just so long the common laboring man, willing to do what is told him to do, will continue to be the best and cheapest gardener. To extend this a little, it has become common, for men having made a little money, to hire a gardener, build green and forcing houses, &c., and, instead of employing skillful men who have made the matter a study, give the subject of construction of these houses to the gardener and joiner, and the arrangement of the grounds, grouping of trees, &c., exclusively to the so called gardener. Criticism is an unpleasant item of performance relative to any production; but when that production is one designed to be permanent and to meet the eye of cultivated taste, as in the designing of residences and the arrangement of roads, trees, &c., surrounding, he who plays the critic must expect sharp points to reach him from every side. But, at the risk of these points, let us say that we do not think five per cent. of the so-called "gentlemen's places" will bear correct criticism, and all because they have preferred to use their own and their gardener's judgment rather than employ one who, having made the whole matter a study, gives drawings before his work, and a reason to each item and position connected with the work.

Hints to Ornamental Planters.—I wish every man, from Maine to California, would read and heed this article. As the writer says, "a smooth carpet of grass, a few choice trees and shrubs, &c., will commend themselves to every eye."

Cool Treatment of Orchids.—One of the best articles on this subject. The suggestion of the writer, however, that our clear skies and suns are not the same as in England is worth careful thought ere the amateur expends much of time or money on growing orchids in a house with grapes; but I should like much to find success the rule rather than the exception.

Culture of the Rose.—A plain practical article that alone is worth to the uninitiated Rose grower more than the cost of the Journal a year. It is such records of practice and detail of culture that make the Horticulturist peculiarly valuable. Let us hope they will be continued.

Raising Hybrid and Seedling Grapes.—Mr. Campbell's experience on this point, and as here recorded, is of great value as a guide to farther progress. He says that with all his seedlings, he does not yet feel that he has acquired a grape that will take the place of kinds now known, and yet to our knowledge he has grown many hundreds. Truly this growing of a superior fruit from seed is rather an up-hill work. It is well we have enthusiasts in fruit culture, men who care more for the enjoyment obtained in the prosecution of these labors than for the money value predicated thereon. Within a week of our present writing we have examined over two hundred seedlings, mostly crosses, in which Delaware acted as one of the parents; but, like Mr. Campbell, we may continue to work and *hope*, the result sought for has not yet appeared.

The Wren.—A well-written plea for one of our most deserving and, by us, cherished songsters. It is not, however, the Wren alone that should be protected and a habitation provided; but the Robin, Lark, &c., deserve the attention of all residents of the country, not alone for their musical songs, but for their practical labors in preventing the increase of insects. A friend of mine claims that the common Barn Swallow, by eating of the fly, prevents the Slug, commonly called Pear or Cherry Slug, from doing any injury to his trees, while half a mile from him, and where the Swallow does not brood, the insect is abundant.

Evergreens.—The writer is correct in advising us to stick to our old and well tried friends the Norway Spruces, Hemlocks, &c. He says when a pine grows long and spindling, cut off the leader, &c., but he does not tell us when to do it. In my experience, I have found that all evergreens will bear cutting back; but it is only within a few years that I have practised cutting when just about half the growth has been made, in the spring. If cut at that time, I find they form strong side buds, and the next season beautiful thick heads, while if cut before growth, often it takes two or more years ere the cutting back is clearly healed and the form well established.

Letter to Cousin Selina. This letter recalls to my mind the proposal, some few years since, to build large green houses in the Central Park. Pray tell us, Messrs. Commissioners, why have they not been built? Surely, New York, as a city, was never more prosperous; surely there cannot have been any want of money for the purpose; nor, with all the taxes now levied, do we believe there is a resident of the city who would be unwilling to add a little more if he knew it would be judiciously expended in forming an elegant winter public garden.

Reuben.

Errata.—The first form containing our leader slipped through our hands before the proof was duly corrected, we have consequently been annoyed at finding, in the first column, on page 246, a serious error, which we here correct. Instead of "12 inches from their starting point," r ad *one inch*. We would also add, that the article has intentionally been translated as literally as possible, in order to follow the author word for word in all his instructions. This will account for its peculiarity of style.

EDITOR'S TABLE.

To Contributors and Others.—Address all Communications, for the Editorial and publishing departments, to Geo. E. & F. W. Woodward, 37 Park Row, New York.

Wodenethe, Fishkill on Hudson,
15th June, 1865.

Messrs. Woodward.

Dear Sirs: I enclose you herewith a letter from Mr. Hunnewell, of Wellesley, near Boston, the finest place in Massachusetts, describing three or four of the most prominent places in England, which I think would prove very interesting to a good many of your readers, especially those who are inclined to the cultivation of the newest evergreens.

Truly yours, Henry W. Sargent.

* * * * Liverpool, 21st May, '65.

I have thought of you a great deal lately, having experienced a "sensation" week in a horticultural way, somewhat similar to the political one you described. We have been to see some of the show places I had hoped to visit with you, such as Elvaston Castle, Alton Towers, Chatsworth, Trentham, &c., which have afforded me much gratification, as you may suppose. I was much surprised and disappointed though, to find some of them quite run out, such as the two first, which are shockingly neglected, though they do say Elvaston will be restored soon, as the present Earl will become of age, and, having some taste for country life, will make his entrée to the estate through the gilded gate, burn a yew log, and have a state dinner in the grand banquetting hall, which we saw, as likewise Miss Foote's (of buy a broom notoriety) chamber, looking out on to that famous Italian garden, as it is represented in the "Gardens of England," and which is really a great wonder, the topiary work exceeding even my most sanguine expectations. It is all executed with the Yew, except the covered walk with the little loopholes, as they appear in the sketch, which to my surprise I found was of arbor vitæ, thickened at the bottom with box. It is very curious and quite successful. This Italian garden is the only part of the place kept up; but that is no small job, as there is a great quantity of clipping done; and the trees are so tall that they are obliged to have as much scaffolding to reach them as would be necessary to gild the Boston State House cupola. There are half a dozen yew arbors with enormous peacocks on top of them, pedestals with crowns capitally executed, trees trimmed up ten to fifteen feet high in a circular form, and the tops then allowed to throw out their branches; and then in the back ground two great columns resembling very much the column in the Place Vendome; they were so high. Most of the Araucarias here in this garden, and all over the place, were killed four years ago, making bad work in their calculations. But the *evergreen feature* is decidedly overdone, and makes the place very dismal and gloomy, especially as every avenue and path are lined with the Irish Yews; and there is but one spot in one hundred and ten acres where a deciduous tree is to be seen! Even the great avenue, two to three hundred feet wide, with a view seven miles distant, has an inside row of those upright growing Yews. The greatest curiosities are some enormous Golden Yews, as much as sixty feet or more in circumference, and lots of splendid Douglas Firs, the finest trees in the place. There were many large pinus cembras, but only middling sized specimens of Pinsapos, Nobillis, Deodars, &c. I must not

forget though a Weeping Ash grafted forty feet high, which will be a curiosity indeed one of these days.

I saw the machine referred to by Mr. Barron in his book, who remains on the place, though he has given it no attention for a dozen years or more, being allowed only a small sum of money for expenditures; so he has been busy in preparing a nursery close by, and is going into that business.

Alton Towers, the Earl of Shrewsbury's is also very much neglected, no attention being paid to the grounds around the castle, which he cannot afford to inhabit. But the gardens are mostly in a valley, one side of which is principally covered with masses of Rhododendrons, showing off to great advantage on the side hill; but a great proportion, here as elsewhere, are Ponticœms, the cultivation of which Waterer tells he has given up; they are so inferior to the catawbienses varieties.

Chatsworth I was disappointed in. The house is situated rather low, not comparing with Eton Hall or many other Italian palaces we have seen. The park, though grand, has not an evergreen tree in it. The rock work, composed of square blocks, is too artificial, and altogether it did not come up to expectations.

Trentham offers greater attractions than almost any other place, being on a grand scale, and in fine keeping in every respect. But I noticed very few novelties in the way of trees or shrubs. We could not get into the house; but it has a noble appearance, and comes up to one's ideas of a Ducal residence; it is on low ground, though as usual, with limited views, but has a fine sheet of water in front.

One of the most interesting places I have seen has been Mr. Bateman's at Congleton, who figures in the "Gardener's Chronicle" frequently, you may have noticed. He has no park; and at first sight I thought I had been caught on a wild goose chase, the house being within fifty feet of the road, on low ground, with a great furnace chimney by the side of it as tall as a Manchester factory. But the garden, though small, has the greatest collection of novelties of every kind imaginable in prime order, and all in the finest keeping. You have rock work, stump work, Italian gardens, Chinese gardens and Egyptian, all admirably carried out with appropriate plants. But the greatest attraction is an evergreen avenue of some fifteen years growth treated in the most novel and admirable manner, which would make you open your eyes wide, for there is nothing to be compared to it in the great crack places. It has raised irregular borders planted with great judgment and taste with all the new varieties of trees and choice specimens of shrubs, the Rhododendrons, so full of blossoms that they are obliged to thin them out; so says the gardener, who breaks off the old faded blossoms before they go to seed. Here, as at many other places, it seems to be the habit to charge an admission fee for the benefit of some charitable society, a pretty good idea, as you get rid in that way of many loafers and undesirable visitors. You had better try it.

Before leaving London we went one day to Hampton Court, and saw the grand avenue of Chestnut trees just as they were in full bloom; five rows of magnificent old trees on each side; one hundred and sixteen in a row; the two inner ones of Chestnuts, and the other eight Lindens. A great sight indeed! We also went to the Royal Horticultural Society Gardens, and saw sixty thousand tulips in bloom. Just outside the main enclosure I spied a great lot of Rhododendrons, which I found on inquiry belonged to Waterer, who was planting them out for the great exhibition. So I went up and introduced myself. He is a fat chunky looking Englishman, received me very cordially, and we had a long chat together, he having a great deal to say about a *Mr. Sargent*, whom he expects to bloom this year in perfection! He had three thousand plants there he said brought up from his nursery, twenty-five miles distant, in teams, with large balls of earth, of course. The names of every one he knew, though they had no

labels and were not in blossom. The place for the exhibition is a great pit sunk down a dozen or fifteen feet, with the plants arranged on the sides, terrace like; so they show to great advantage; the whole to be covered, when in bloom, with a great tent. They will be in their prime in a few days, when I hope to see them, as also the nursery.

IONE VALLEY, CAL., June 8th, 1865.

This climate admits of the widest range for fruits, flowers and vegetable products of most all kinds.

We have the Fan Palm and Pomegranate growing successfully in the open air. We are raising Oranges and Olives. We know not yet what our soil and climate will produce, nor the extremes of vegetable products which may yet here be brought to harmonize in our great variety of climate and soil.

We can begin on the San Joaquin River, with its tropical climate, (barring the rains) and ascend to the eternal snows of the Sierras. For grapes, we have all varieties of soil and climate, so as when properly understood, we can have wines superior in flavor, of all kinds, and cheaper than adulterated. With the remaining fruits, we combine Maine and Florida, and some parts, I have no doubt, of the Isthmus.

Yours, respectfully,

CARLOS W. SHANE.

BROOKLYN, N. Y., July 6, 1865.

EDITORS OF THE HORTICULTURIST:

Gentlemen,—We of the city are often regaled with the fine stories of what this man or that man has done upon one, two or three acres; for instance, we hear of a man receiving for the fruit plucked from his 2½ acre field of Blackberries, a sum equal to $1100 a year. Again we hear of $1500 an acre from Grapes. At another time we hear of $600 to the acre for Strawberries, and $1000 to the acre for Cabbage, Lettuce and Celery.

Just now there is a great rage for ten acre fruit farms, and I am curious to know how a farm of that size can be so disposed as to yield the largest income, by devoting ½ to ⅔ to fruits and the rest to vegetables.

I would respectfully submit the following estimate to you, and ask whether a father and son, with the help of a hired man, can so cultivate ten acres carefully and with liberal manuring, as to yield the following sums? If any of your readers can do better, I would like to have them record their opinions in your corresponding columns.

TEN ACRES.

			Yearly revenue.
2½	acres to	Strawberries	$700 00
2½	"	Blackberries	700 00
½	"	Grapes, Hartford prolif.	250 00
½	"	" Concord	250 00
½	"	" Delaware	250 00
½	"	Horse Radish	200 00
½	"	Asparagus	100 00
½	"	Lettuce, Cabbage, Celery	300 00
½	"	Rhubarb and late Cabbage	300 00
½	"	Onions	200 00
½	"	Sweet Corn and early Potatoes	75 00
½	"	garden vegetables, such as Melons, Lima Beans, Tomatoes, Cauliflowers, Beets, Carrots, Turnips, Parsnips, &c.	100 00
		Total Revenue	$3,425 00

I should think that every expense, such as manure, hired labor, expense of sending to market, and keeping of horse from the spring to the fall seasons might be included within the $925, leaving the snug little profit of $2,500. Are my estimates too high? if so, please set me right.

Yours, Horticulturally,

H. T. WILLIAMS.

MESSRS. EDITORS,

The annual June Exhibition of the Newburgh Bay Horticultural Society has just

taken place; and I learn from the Treasurer that the receipts this year exceed that of last season forty-four per cent., encouraging to its gentlemanly and energetic managers, who eminently deserve success for their hopefulness and perseverance. *Failure* is not in their vocabulary.

As this Society in all its particulars is a Newburgh institution, as it does very much to refine and exalt true taste, it is to be regretted that many wealthy citizens, who spare neither money or exertion to appear tasteful and refined, should neglect or refuse to extend to it the patronage of a single dollar for membership, or the paltry quarter for a season's visit to its attractive exhibitions of choice fruits and flowers; this too in contrast with the visits made to People's Hall from far distant parts of the State, and from neighboring States, to enjoy the fine display, not to be found elsewhere.

Although Newburgh is honored in the exhibition, yet it is mainly indebted to the adjacent towns for its most liberal supplies, many of which were gifts to the Society. All honor to Fishkill, Cornwall and Plattekill.

The premiums offered were very liberal; but we understand that only about half the amount was called for, thus showing that the exhibitors were as anxious to get up a fine show as to draw the prizes. Indeed, one of the prizes, the best basket of flowers, was not competed for, although several were on exhibition, among which were three splendid ones from Cornwall, simply labelled with the names of the lady contributors. The prizes were offered for the largest and best collection of Roses, 1st and 2d, Hybrid perpetual Roses, Bourbon Roses, Tea Roses, Hardy June Roses, Moss Roses; for the best three Roses of any variety; Herbaceous Pœonies, Lilies, Sweet Williams, Carnations, Pinks, Iris, Pansies, cut flowers, baskets of flowers, large bouquet for vase or parlor, hand bouquets, wreath of flowers, pot plants; for the best general collection of green-house plants; for the best general collection of stove plants; for the best five distinct named varieties of Fuchsias; for the best six varieties of Achimenes; for the best six varieties of Gloxinias; for the best six varieties of Pelargoniums.

Fruits.—For the best and largest collection of Strawberries; for the best three varieties; for the best Triomphe-de-Gand; for the best Russell's Prolific; for the best quart of any variety; for the best three varieties of Cherries; for the best quart of any variety of Cherries; for the best plate of Raspberries; for the best specimen of Muskmelon.

Vegetables.—For the best Asparagus, Cauliflower, Cucumbers (under glass), Lettuce, Peas, Rhubarb, Potatoes, Beans and Tomatoes.

The show was splendid and tastefully arranged. Our limits will not admit of particular mention of individual exhibitors, or the names of those who took the premiums; but we cannot forbear to give great praise to the parties who got up and sustained the fair, so creditable to all. We wish every county in the State could make a similar exhibition; and when next the Newburgh Bay Horticultural Society exhibit, "may we be there to see." We learn that their grand, full exhibition of Fruits, Apples, Pears, Grapes (under glass, and Hardy Native), Peaches, Nectarines, Plums, Quinces, Muskmelons, Watermelons, Vegetables and Flowers of every variety, will come off on 27th, 28th and 29th September next, and will probably be the very finest display of the kind ever seen in this country.

ADMIRER.

Newburgh, June 20th, 1865.

ROSE BUGS.—For several years past every effort of mine has failed to save my Grapes from the ravages of the rose bugs.

Last year I resolved, regardless of time and trouble, to keep my vines clear of this pest by going over and destroying them two or three times a day, which I did do most thoroughly. The result was, I saved only fifteen or twenty imperfect bunches on vines that should have produced many

hundreds. Last year my wife having saved some of her rose-buds by paper bags, I concluded I would this year try them on my grapes. Before the bugs made their appearance I prepared some 600 small bags from old newspapers. On the first bugs showing themselves I slipped one of these bags over the grape stem (then just forming, but not yet in blossom) and gathered it up close to the vine, securing it with a string.

This proved a perfect success. I have now on my vines nearly 600 as perfect bunches as one would wish to see. Of many hundred bunches left uncovered, I do not think a single grape escaped the bugs.

The bags were about two by five inches. I put on quite a number of larger bags to hold the branch and several bunches. All these failed, as none were saved where leaves were tied up in the bags, as the grapes blasted in process of blooming. Most of the large and few of the small bags were torn, in two very hard wind and rain storms. Fearing the grapes might injure by remaining too long in the bags, I took them off as soon as I thought they were safe from the bugs; but in the hurry of the operation quite a number were overlooked, and as these burst their way out, they not only showed no damage by their long imprisonment, but the grapes are larger than those first removed from the bags. The rose bug seldom attack the grape after it is set, but only the blossom; though they are often quite destructive to Apples, Peaches, and Cherries.

G.

Burlington, N. J., July 3, 1865.

Lilium Auratum. — We were shown lately at the store of Messrs. Henderson & Fleming, 67 Nassau St., magnificent blooms of this superb new lily. They were grown by Mr. John Dingwall of Albany, and far exceed in size (measuring nearly eight inches in diameter,) any of the illustrations of this flower that have come to our notice. The great beauty of this lily—its perfect hardiness, delightful fragrance, and the ease of its culture, must recommend it to all lovers of flowers, and we hope to see it generally disseminated.

Mr. Dingwall also exhibits a new lily without name, received among other bulbs from Japan. It resembles in form the old Turk's cap. Color yellow, with brown spots finely perfumed. This we think a decided acquisition to the lily tribe.

Seymour's Patent Tree Protector.— This is a contrivance manufactured by P. & F. Corbin, New Britain, Conn., to prevent insects from ascending the bark of trees, and consists of a circular iron trough protected from the weather, and placed around the trunk. This trough being filled with oil arrests the progress of all insects that do not fly. They are very neatly made of cast iron, japanned, and of all sizes that may be required, and can be easily applied by any one. We should think they would fully answer the purpose for which they are intended.

The Wilson Early Blackberry.—We received, July 12th, one quart of this Blackberry from John S. Collins of Moorestown, New Jersey, which were showy and in fine eating condition. It is said to be a valuable and distinct variety; as good a grower and more productive than the New Rochelle, ripening 5 to 10 days earlier.

American Horticultural Register.— We call the attention of our readers to the advertisement of W. C. Flagg, Secretary of the Illinois State Horticultural Society, Alton, Illinois. All engaged in business as nurserymen, fruit growers, dealers, agents, &c., are invited to send early, prompt and correct information, for the purpose of compiling the American Horticultural Register. This is a work that promises to be of great value to the trade and others; and we hope all interested will respond fully.